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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/995,607	11/29/2001	Sadayuki Iwai	216468US2	2319
22850	7590	04/09/2004	EXAMINER	
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			LEE, SUSAN SHUK YIN	
			ART UNIT	PAPER NUMBER
			2852	

DATE MAILED: 04/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/995,607

Applicant(s)

IWAI, SADAYUKI

Examiner

Susan S. Lee

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 December 2003.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6, 8, 10, 11, 13-30, 32-60, 63-70 and 72-80 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 1-6, 8, 10, 11, 13-25, 50-60, 63, 65-67, 69, 70, 72-78 and 80 is/are allowed.
6) ☒ Claim(s) 26, 27, 32-34, 38, 41, 45-48, 68 and 79 is/are rejected.
7) ☒ Claim(s) 28-30, 35-37, 39, 40, 42-44, 49 and 64 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 29 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: See Continuation Sheet.

Continuation of Attachment(s) 6). Other: Consideration of papers filed 8/28/03 & 10/24/03.

DETAILED ACTION

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the jetting charged ink droplets, jetting a charged toner, and selectively adhering a thin layer of a magnetic toner must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities:

Arrows to indicate new paragraphs in the specification should be deleted from the specification, for example on pages 63-64.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 68 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As to claim 68, line 16, "the intermediate transfer member unit" lacks antecedent basis. There is a previous recitation of an intermediate transfer member. Are these the same element or different ones?

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 26 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holzhauser (4,593,995) in view of Hamanaka (Japan, 423), Raj (5,710,958), and Nukada (6,336,021).

Holzhauser discloses a copier with a photoconductor 32 that reads on the instant invention's image supporting member, a first transfer station 42, a second transfer station 44, and a turnover drum 50 that reads on the instant invention's inverting unit. When duplex copy sheets are to be formed, copy sheets CS are fed from the lower supply 43 to a position alongside the photoconductor between developing station 40 and the first image transfer station 42 so a developed image from one side of the document sheet is transferred to one side of the copy sheet. Then the copy sheet is transported with the photoconductor to a turnover drum 50 where the drum picks up the

copy sheet and moves it initially in a counterclockwise direction as viewed in Fig. 1 until the trailing edge of the copy sheet is removed from the photoconductor. At the appropriate time in the cycle, the direction of the drum 50 is reversed to return the copy sheet to the photoconductor with the previously applied image then being on the upper side of the sheet (away from the photoconductor). Then the sheet is transported beneath the second transfer station 44 where a second developed image on the photoconductor is applied to the second side of the copy sheet. The copy sheet with the two images thereon then passes through a fusing station 52 which adheres the developed images to the copy sheet. Note column 4, lines 5-32. A document is scanned on a platen 22 with lamps 24. A charging station 36 charges the photoconductor to receive an image of a light pattern of the document page on platen 22. At an exposing station 38, the light pattern selectively discharges the electrostatic charge to form a latent image on the photoconductor. The photoconductor then passes through a developing station 40 where toner particles are applied to the latent electrostatic image to develop the image. Note column 3, line 21- column 4, line 4. When duplex document sheets S are provided in tray 14, it is necessary to copy both sides of the document sheets. The lamps 24 illuminate the document for copying, the document sheet is again fed around turnaround roller 28 and returned to the platen so that the second side of the document is fed through return path 26 back to the top of the stack of sheets. Note column 3, lines 21-50.

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Holzhauser differs from the instant invention by not disclosing a branched nail; a conveyance roller; and a liquid developing agent containing toner dispersed in liquid solvent;

Hamanaka discloses an inversed triangular movable branching body 13 that reads on the instant invention's branched nail and rollers 11 and 12 that read on the instant invention's conveyance rollers. The movable branching body 13 is swayed between the upstream roller 11 and a downstream roller 12 using an axis 14 as a fulcrum so that a sheet discharging path (a), a guiding path (b), and reversal sheet discharging path (c) are provided centering the movable branching body 13. The branching body 13 is swayed when a solenoid 15 is turned on, the guiding path (b) is opened and the sheet discharging path (a) is closed, and a sheet R is guided to a double-face copying path. On the other hand when the solenoid 15 is turned off, the sheet-discharging path (a) is opened and the guiding path (b) is closed, thereby the sheet R is discharged to another path. It is also noted that a reciprocal roller 18 is used in this path. Note abstract.

Raj discloses an electrophotographic printing process that develops the latent image with developer that is either a dry or liquid marking material having a carrier and toner. Note column 1, lines 10-20.

Nukada discloses that a wet electrophotographic apparatus using a liquid developer containing a toner and a solvent produces various merits that cannot be produced by a dry electrophotographic apparatus using a developing powder. Since a sufficiently high image density can be obtained with a small amount of the toner, the wet

electrophotographic apparatus is advantageous in economy. Also, the wet electrophotographic apparatus permits achieving a texture equivalent to that of an offset printing. Further, the toner in the liquid developer can be fixed to a paper sheet at a relatively low temperature, leading to an energy saving. Note column 1, lines 21-33.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Holzhauser with that of Hamanaka by replacing the turnover drum 50 with the movable branching body 13 and conveyance rollers of Hamanaka in order to reliably select the path of a sheet and effectively prevent jam from occurring when making double sided copies as disclosed by Hamanaka.

Raj shows the different developers, dry and liquid are equivalent structures known in the art. Therefore, because these developers were art-recognized equivalents at the time the invention was made, one of ordinary skill in the art would have found it obvious to substitute the dry developer of Holzhauser with that of a liquid developer since Raj discloses that they are equivalent structures and Nukada discloses the advantages of using liquid developer over dry developer such as energy saving of fixing the developer; economics by using less toner; and better prints as disclosed by Nukada.

Claims 27, 32-34, 38, 41, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holzhauser (4,593,995), as modified by Hamanaka (Japan, 423), Raj (5,710,958), and Nukada (6,336,021), as applied to claims 26 and 48 above, and further in view of Nakamura (Japan, 364).

Holzhauser, as modified by Hamanaka, Raj, and Nukada differ from the instant invention by not disclosing the liquid developing agent having a characteristic to be cured by an optical function.

Nakamura shows toner used for liquid development is cured by ultraviolet rays, thus this improves the adhesiveness of the toner to a recording medium to be transferred. Note abstract.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Holzhauser as modified by Hamanaka, Raj, and Nukada, with that of Nakamura so that the toner can be more adhesive to the recording medium to be transferred. This is discussed by Nakamura. Note abstract.

Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holzhauser (4,593,995), as modified by Hamanaka (Japan, 423), Raj (5,710,958), and Nukada (6,336,021), as applied to claims 26 and 48 above, and further in view of Nakashima et al. (6,308,034).

Holzhauser, as modified by Hamanaka, Raj, and Nukada differ from the instant invention by not disclosing a liquid solvent in the developer is volatile.

Nakashima et al. discloses using in a wet type electrophotographic apparatus a liquid developer with a volatile solvent so that the removal rate of the solvent is increased. Note column 3, lines 57-59.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Holzhauser in view of Hamanaka, Raj,

and Nukada, with that of Nakashima et al. so that a volatile solvent can be used in the liquid developer to increase rate of removal of solvent.

Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holzhauser (4,593,995), as modified by Hamanaka (Japan, 423), Raj (5,710,958), and Nukada (6,336,021), as applied to claims 26 and 48 above, and further in view of Mochizuki et al. (Japan, 448).

Holzhauser, as modified by Hamanaka, Raj, and Nukada differ from the instant invention by not disclosing a liquid solvent of the developer is permeable to the recording medium.

Mochizuki et al. discloses using a liquid developer with a carrier solvent that improves transferability of the toner itself and facilitates attachment and permeability to paper. Note abstract.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Holzhauser in view of Hamanaka, Raj, and Nukada, with that of Mochizuki et al. so that a solvent can be used in the liquid developer to facilitate attachment and permeability to paper in order to improve transferability of toner to the paper.

Claim 79 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holzhauser (4,593,995) in view of Raj (5,710,958) and Nukada (6,336,021).

Holzhauser discloses a copier with a photoconductor 32 that reads on the instant invention's image supporting member, a first transfer station 42, a second transfer station 44, and a turnover drum 50 that reads on the instant invention's inverting unit.

When duplex copy sheets are to be formed, copy sheets CS are fed from the lower supply 43 to a position alongside the photoconductor between developing station 40 and the first image transfer station 42 so a developed image from one side of the document sheet is transferred to one side of the copy sheet. Then the copy sheet is transported with the photoconductor to a turnover drum 50 where the drum picks up the copy sheet and moves it initially in a counterclockwise direction as viewed in Fig. 1 until the trailing edge of the copy sheet is removed from the photoconductor. At the appropriate time in the cycle, the direction of the drum 50 is reversed to return the copy sheet to the photoconductor with the previously applied image then being on the upper side of the sheet (away from the photoconductor). Then the sheet is transported beneath the second transfer station 44 where a second developed image on the photoconductor is applied to the second side of the copy sheet. The copy sheet with the two images thereon then passes through a fusing station 52 which adheres the developed images to the copy sheet. Note column 4, lines 5-32. A document is scanned on a platen 22 with lamps 24. A charging station 36 charges the photoconductor to receive an image of a light pattern of the document page on platen 22. At an exposing station 38, the light pattern selectively discharges the electrostatic charge to form a latent image on the photoconductor. The photoconductor then passes through a developing station 40 where toner particles are applied to the latent electrostatic image to develop the image. Note column 3, line 21- column 4, line 4. When duplex document sheets S are provided in tray 14, it is necessary to copy both sides of the document sheets. The lamps 24 illuminate the document for copying,

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the document sheet is again fed around turnaround roller 28 and returned to the platen so that the second side of the document is fed through return path 26 back to the top of the stack of sheets. Note column 3, lines 21-50.

Holzhauser differs from the instant invention by not disclosing a liquid developing agent containing toner dispersed in liquid solvent.

Raj discloses an electrophotographic printing process that develops the latent image with developer that is either a dry or liquid marking material having a carrier and toner. Note column 1, lines 10-20.

Nukada discloses that a wet electrophotographic apparatus using a liquid developer containing a toner and a solvent produces various merits that cannot be produced by a dry electrophotographic apparatus using a developing powder. Since a sufficiently high image density can be obtained with a small amount of the toner, the wet electrophotographic apparatus is advantageous in economy. Also, the wet electrophotographic apparatus permits achieving a texture equivalent to that of an offset printing. Further, the toner in the liquid developer can be fixed to a paper sheet at a relatively low temperature, leading to an energy saving. Note column 1, lines 21-33.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Holzhauser with that of Raj and Nukada because Raj shows the different developers, dry and liquid are equivalent structures known in the art and Nukada shows why one of ordinary skill in the art would have use liquid developer over a dry developer. Therefore, because these developers were art-recognized equivalents at the time the invention was made, one of ordinary skill in the

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art would have found it obvious to substitute the dry developer of Holzhauser with that of a liquid developer since Raj discloses that they are equivalent structures and Nukada discloses the advantages of using liquid developer over dry developer such as energy saving of fixing the developer; economics by using less toner; and better prints as disclosed by Nukada.

Allowable Subject Matter

Claim 68 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

Claims 28-30, 35-37, 39, 40, 42-44, 49, and 64 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 1-6, 8, 10, 11, 13-25, 50-60, 63, 65, 66, 67, 69, 70, 72-78, and 80 are allowed over the prior art of record.


Response to Arguments

Applicant's arguments with respect to claims 26, 27, 32-34, 38, 41, 45-48, and 79 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan S. Lee whose telephone number is 571-272-2137. The examiner can normally be reached on Mon. - Fri., 10:30-8:00, Second Monday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Art Grimley can be reached on 571-272-2136 or 571-272-2800 (Ext. 52). The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Susan S. Lee
Primary Examiner
Art Unit 2852

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